DOCUMENT RESUME

ED 417 698 IR 018 764

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TITLE	Internet Access in Public Schools. Issue Brief.
INSTITUTION	National Center for Education Statistics (ED), Washington, DC.
REPORT NO	NCES-98-031
PUB DATE	1998-03-00
NOTE	4p.
AVAILABLE FROM	Phone: 1-800-424-1616; electronic version: http://www.NCES.ed.gov/
PUB TYPE	Numerical/Quantitative Data (110) -- Reports - Evaluative (142)
EDRS PRICE	MF01/PC01 Plus Postage.
DESCRIPTORS	Educational Research; Elementary Secondary Education; Futures (of Society); *Internet; *Public Schools; School Community Relationship; *School Statistics; Statistical Analysis; Tables (Data); Telecommunications
IDENTIFIERS	Access to Computers; Barriers to Implementation; *Technology Integration

ABSTRACT

In order to measure Internet access in U.S. public schools, the National Center for Education Statistics (NCES) surveyed a nationally representative sample of public schools in 1994. Subsequent surveys in 1995, 1996, and 1997 enabled NCES to track growth in this area. This Issue Brief presents information on: how much progress the schools have made in connecting to the Internet; the availability of Internet access in instructional rooms; the outlook for achieving Internet access by 2000; the educational and community groups that are supporting telecommunications in the schools; and the challenges that remain for educators as schools obtain Internet access. The percentage of U.S. public schools with Internet access increased from 35% in fall 1994 to 78% in fall 1997. The percentage of schools with Internet access that had access in five or more instructional rooms increased from 25% in 1996 to 43% in 1997. Data from 1996 indicated that 87% of schools that lacked Internet capabilities planned to obtain Internet access by 2000. Parents, community members, local businesses, and not-for-profit groups provide assistance to schools in acquiring Internet access and other advanced telecommunication services. Challenges for educators include providing technical support; ensuring teachers and administrators have time for and access to staff development; increasing the effective use of the Internet to support student learning; and protecting students from inappropriate material on the Internet. (SWC)

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National Center for Education Statistics Issue Brief
March 1998

U.S. Department of Education
Office of Educational Research and Improvement

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NATIONAL CENTER FOR EDUCATION STATISTICS

ISSUE BRIEF

March 1998

Internet Access in Public Schools

Can students in our schools reach the Library of Congress with their research questions, track the Iditarod race, follow expeditions in the rain forest, and exchange e:mail with pen pals around the world? To ensure the essential connections for such exciting activities, President Clinton's Technology Literacy Challenge calls for an effort to connect all U.S. public schools and every instructional room, that is, classroom, computer lab, and library/media center, to the Internet. In order to measure Internet access in the schools, the National Center for Education Statistics (NCES) surveyed a nationally representative sample of public schools in 1994. Subsequent surveys in 1995, 1996, and 1997 have enabled NCES to track growth in this rapidly changing area.

How much progress have schools made?

The effort to connect all of the nation's public schools to the Information Superhighway is moving swiftly. In just 3 years, the percentage of U.S. public schools with Internet access increased from 35 percent in fall 1994 to 78 percent in fall 1997 (table 1). On the whole, schools are on track toward achieving the goal of connecting all of the nation's public schools to the Internet.

Table 1.—Percentage of public schools having access to the Internet in fall 1994, 1995, 1996, and 1997, by school characteristics

School characteristics	Public schools having access to the Internet			
	1994	1995	1996	1997
All public schools	**35**	**50**	**65**	**78**
Instructional level*				
Elementary	30	46	61	75
Secondary	49	65	77	89
Size of enrollment				
Less than 300	30	39	57	75
300 to 999	35	52	66	78
1,000 or more	58	69	80	89
Metropolitan status				
City	40	47	64	74
Urban fringe	38	59	75	78
Town	29	47	61	84
Rural	35	48	60	79
Geographic region				
Northeast	34	59	70	78
Southeast	29	44	62	84
Central	34	52	66	79
West	42	48	62	73
Minority enrollment				
Less than 6 percent	—	52	65	84
6 to 20 percent	—	58	72	87
21 to 49 percent	—	54	65	73
50 percent or more	—	40	56	63
Students eligible for free or reduced-price lunch				
Less than 11 percent	—	62	78	88
11 to 30 percent	—	59	72	83
31 to 70 percent	—	47	58	78
71 percent or more	—	31	53	63

—Data not available

*Data for combined schools (those that span elementary and secondary grades) are included in the totals and in analyses by other school characteristics but are not shown separately.

SOURCE: U.S. Department of Education, National Center for Education Statistics, "Advanced Telecommunications in U.S. Public Schools, K–12," NCES 95–731; "Advanced Telecommunications in U.S. Public Elementary and Secondary Schools, 1995," NCES 96–854, "Advanced Telecommunications in U.S. Public Elementary and Secondary Schools, Fall 1996," NCES 97–944; and data from the "Survey on Advanced Telecommunications in U.S. Public Schools, Fall 1997," FRSS 64, 1997.

Despite this progress however, certain gaps persist in establishing Internet links in U.S. public schools. In 1997, schools with 50 percent or more minority students enrolled lagged behind schools with 20 percent or fewer minority students, as did smaller schools (those with fewer than 1,000 students), which are more likely to be elementary than secondary schools. Also lagging in Internet capabilities were schools with 71 percent or more poor students (that is, students eligible for free or reduced-price lunch), with 63 percent having access; however, schools with 31 to 70 percent poor students have recently made considerable gains in Internet access, moving from 58 percent in 1996 to 78 percent in 1997. From 1996 to 1997, Internet access increased in the Southeast and Central regions, where Internet access rose from 62 percent to 84 percent and 66 percent to 79 percent, respectively (table 1).

What is the availability of Internet access in instructional rooms?

Although the goal of connecting all U.S. public schools to the Internet now appears to be within reach, making the Internet accessible to all students in all instructional rooms will require much more effort. Over the last year, the percentage of schools with Internet access which had such access in *five or more* instructional rooms increased from 25 percent in 1996 to 43 percent in 1997 (table 2). Another way of looking at instructional rooms with access is to look at all such rooms across all public schools. Since 1994, the percentage of instructional rooms which were connected to the Internet increased from 3 percent to 8 percent in 1995, 14 percent in 1996, and 27 percent in 1997. However, in 1997 in the 2 percent of schools which reported *no* connections in instructional rooms, students would have little or no contact with the Internet. Further, even in instructional rooms with Internet access, students who spend time in those rooms may not actually use that access.

Table 2.—Distribution of schools by the number of instructional rooms with Internet access, among all public schools with access: Fall 1996 and 1997

Extent of Internet access	Percentage of public schools	
	Fall 1996	Fall 1997
No instructional rooms	5	2
1 instructional room	43	31
2, 3, or 4 instructional rooms	26	23
5 or more instructional rooms	25	43

NOTE: Percentages may not add to 100 percent due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, "Advanced Telecommunications in U.S. Public Elementary and Secondary Schools, Fall 1996," NCES 97–944; and data from the "Survey on Advanced Telecommunications in U.S. Public Schools, Fall 1997," FRSS 64, 1997.

What is the outlook for achieving Internet access by 2000?

Administrators from schools of all types in all regions of the country reported moving to secure the new technologies. Data from 1996 indicated that 87 percent of schools that lacked Internet capabilities reported planning to obtain Internet access by 2000; thus if these schools are able to acquire access, 95 percent of **all** schools would have Internet access in 2000[1] (table 3). If these expectations are realized, then 93 percent of schools with 71 percent or more poor students would have Internet access by 2000; and in schools where more than half the students are minorities, 91 percent would have Internet access. Over the next 3 years, Internet access in schools and within instructional rooms is likely to continue to increase, as it has in each year between 1994 and 1997.

[1] The 95 percent is calculated by adding the 87 percent of the 35 percent of schools which lacked access in 1996 to the 65 percent of schools which had access in 1996.

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Table 3.—Year-to-year increases in Internet access, from fall 1994 to 1997; percentage of public schools expecting to have Internet access by 2000; difference between 1996 expectations for 2000 and 1996 level of access; and percentage of this difference achieved by 1997, by school characteristics

School characteristics	Percentage point annual change 1994 to 1995	1995 to 1996	1996 to 1997	Percentage of schools in 1996 having or expecting to have Internet access by 2000[1]	Measuring progress toward 1996 expectations for 2000 Total required increase[2]	Percent of increase achieved by 1997[3]
All public schools	**15**	**15**	**13**	**95**	**30**	**43**
Instructional level[4]						
Elementary	16	15	14	94	33	42
Secondary	16	12	12	98	21	57
Size of enrollment						
Less than 300	9	18	18	93	36	50
300 to 999	17	14	12	96	30	40
1,000 or more	11	11	9	97	17	53
Metropolitan status						
City	7	17	10	94	30	33
Urban fringe	21	16	3	97	22	14
Town	18	14	23	95	34	68
Rural	13	12	19	95	35	54
Geographic region						
Northeast	25	11	8	98	28	29
Southeast	15	18	22	96	34	65
Central	18	14	13	92	26	50
West	8	14	11	96	34	32
Minority enrollment						
Less than 6 percent	—	13	19	95	30	63
6 to 20 percent	—	14	15	97	25	60
21 to 49 percent	—	11	8	98	33	24
50 percent or more	—	16	7	91	35	20
Students eligible for free or reduced-price lunch						
Less than 11 percent	—	16	10	97	19	53
11 to 30 percent	—	13	11	98	26	42
31 to 70 percent	—	11	20	93	35	57
71 percent or more	—	22	10	93	40	25

—Data not available.

[1] Estimates are derived from the percentage of schools that in fall 1996 reported having Internet access in 1996 or planning to obtain Internet access by 2000.

[2] Calculated by subtracting 1996 actual percentage (column 3 in table 1) from 1996 expectations for access in 2000 (column 4 in this table).

[3] Calculated by dividing the actual increase in access between 1996 and 1997 (column 3 in this table) by the increase needed between 1996 and 2000 to meet 2000 expectations (column 5 in this table).

[4] Data for combined schools (those that span elementary and secondary grades) are included in the totals and in analyses by other school characteristics but are not shown separately.

SOURCE: U.S. Department of Education, National Center for Education Statistics, "Advanced Telecommunications in U.S. Public Schools, K–12," NCES 95–731; "Advanced Telecommunications in U.S. Public Elementary and Secondary Schools, 1995," NCES 96–854; "Advanced Telecommunications in U.S. Public Elementary and Secondary Schools, Fall 1996," NCES 97–944; and data from the "Survey on Advanced Telecommunications in U.S. Public Schools, Fall 1997," FRSS 64, 1997.

Over the last year, progress has been substantial toward meeting the expectations for Internet access in 2000 that schools reported in 1996. Overall, 43 percent of the difference between actual levels of access in 1996 and the expectations for access in 2000 has been eliminated (table 3, column 6). Furthermore, this level of progress (40 percent or more of the distance to the goal being achieved) has been accomplished in many different types of schools.

What educational and community groups are supporting telecommunications in the schools?

A key finding from the 1996 survey is that parents, community members, local businesses, and not-for-profit groups provide assistance to schools in acquiring Internet access and other advanced telecommunications services (table 4). Ten percent of schools reported that businesses provided funding for these programs; 18 percent of schools reported that parents and other community members provided funding, and 6 percent reported that community organizations such as libraries or museums provided funding. Still, the most likely source of support was the school districts themselves, and the second most frequent source was state or federal government agencies.

Table 4.—Percentage of public schools indicating that various organizations or individuals are supporting advanced telecommunications in their school: Fall 1996

Organizations/individuals	Percentage of public schools receiving hardware	Percentage of public schools receiving funding
School district	76	83
State or federal government agencies	18	38
Parents or other community members	13	18
Business or industry	13	10
College or university	2	1
Teachers	6	6
Other community nonprofit organizations	4	6
Students	1	1
Other	1	1

SOURCE: U.S. Department of Education, National Center for Education Statistics, "Advanced Telecommunications in U.S. Public Elementary and Secondary Schools, Fall 1996," NCES 97–944.

As schools obtain Internet access, what challenges remain for educators?

The increased availability of Internet opportunities will enable teachers and administrators to employ the technology in many different ways, including record keeping, communicating with parents, distance learning, professional development, curriculum development, and as a classroom teaching tool. To realize such uses of telecommunications, educators face a variety of challenges in addition to acquiring linkages. Such challenges include providing technical support for networks, hardware, and software; ensuring teachers and administrators have the time for and access to staff development for technology integration; increasing the effective use of the Internet to enhance student learning; and protecting students from inappropriate material on the Internet. As schools install additional Internet linkages, administrators will also be working to obtain connections that are faster, have wider bandwidth, and are more reliable than traditional modems.

Issue Briefs present information on education topics of current interest. All estimates shown are based on samples and are subject to sampling variability. All differences are statistically significant at the .05 level. This **Issue Brief** was prepared by John Bare, Knight Foundation, and Anne Meek, Education Statistics Services Institute. For information, contact Edith McArthur, National Center for Education Statistics, (202) 219-1442 or Edith_McArthur@ed.gov. To order additional copies of this Issue Brief or other NCES publications, call 1-800-424-1616. NCES publications are also available on the Internet at http://www.NCES.ed.gov/

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